

PLANTERS HEAR REPORTS OF THE YEAR'S PROGRESS

(Continued from Page 1)

jects will be submitted to your consideration as usual, and there remains nothing for me to enlarge upon. But I bid you a hearty welcome, and I hope and trust that your deliberations will be productive of a good understanding among your good-selves and be beneficial in many other ways.

Respectfully submitted,

P. A. SCHAEFER,

President Hawaiian Sugar Planters' Association.

The address was ordered printed in the Planters' Monthly.

The following list of committees appointed for the year ending November, 1901, was read, and report from the same called for:

Cultivation—Henry P. Baldwin, chairman; John A. Scott, John Hind, Geo. F. Renton, L. Barkhausen.

Manufacture—E. E. Olding, chairman; W. W. Goodale, Geo. Fairchild, C. C. Kennedy, A. Ahrens.

Fertilization—C. F. Eckart, chairman; C. M. Walton, F. T. Crawley, Geo. Ross, Jas. Watt.

Machinery—C. Hedemann, chairman; Jas. Low, Geo. C. Hewett, W. W. Goodale, W. Stoddard.

Disease of Cane—Prof. Koebel, chairman; F. Weber, Hy. Deacon, W. A. Baldwin, Fred Meyer.

Labor—F. M. Swany, chairman; E. F. Bishop, J. P. Cooke, E. D. Tenney, H. A. Isenberg.

Forestry—D. Forbes, chairman; F. B. McStocker, J. Gibbs, H. A. Baldwin, T. S. Kay.

Handling and Transportation of Cane—Jas. Low, chairman; J. M. Horner, John T. Moir, Geo. R. Ewart, K. S. Gjerdum.

Experimental Station—C. F. Eckart, chairman; J. P. Cooke, W. M. Giffard, Geo. S. Wilcox, A. Ahrens.

The report of Secretary Mead was read in which the list of officers and trustees for the year just ended was given. His report read:

SECRETARY'S REPORT

To Annual Meeting of Hawaiian Sugar Planters' Association, 1901.

At the annual meeting held in October, 1900, the following gentlemen were elected trustees of the Association:

F. A. Schaefer, J. B. Atherton, H. P. Baldwin, W. G. Irwin, F. M. Swany, H. A. Isenberg, Geo. H. Robertson, W. P. Pfothauer, and C. Bolte.

The trustees so elected chose the following officers for the ensuing year:

President—F. A. Schaefer.

Vice-President—C. Bolte.

Treasurer—H. A. Isenberg.

Secretary—W. Pfothauer.

Auditor—J. B. Atherton.

In April, 1901, Mr. Bolte resigned as vice president and trustee, and Mr. W. G. Irwin was chosen to fill the vacancy.

And in July of the same year, Mr. H. P. Dillingham was elected trustee in place of Mr. Bolte, resigned.

In August, Mr. H. A. Isenberg resigned as treasurer, and Mr. Pfothauer resigned as secretary and trustee, and Mr. W. O. Smith was elected treasurer.

In October, Mr. J. P. Cooke was chosen auditor in Mr. J. B. Atherton's absence, and Mr. R. D. Mead was appointed acting secretary and treasurer during the absence of Mr. Smith.

Forty-three meetings of the trustees have been held during the year, besides many conferences.

The attention of the board of trustees has been devoted very largely to the labor question. As usual, since the formation of the Association in 1882, the question of obtaining labor for agricultural and mill work has been one of the most important. During the past year, after much difficulty, 2,390 laborers, with their wives and families, have been brought from Porto Rico, besides the introduction of nineteen negroes from the Southern States, seventy-six Italians and 105 Portuguese, and a number of negroes have also been obtained by one of the local firms.

The experiment of bringing such negro laborers did not prove successful, and no further attempts in that direction were made.

The Italians, though few in number, have thus far proven satisfactory.

Crops.—The crops harvested for the year ending September 30, 1901, have yielded well, amounting in all to 369,038 tons.

Experimental Station.—The experimental station has been maintained and efficiently conducted during the past year. Mr. Blouin, the director, has done very efficient work. Owing to illness, Mr. Blouin resigned in August of this year, and Mr. Eckart has been placed in charge pending the appointment of his successor.

The expense of maintaining the station is considerable, but there seems to be no question as to the value of the experiments made and work done.

A meeting of delegates from all the islands was held in August of this year, and the results of the meeting have tended to establish co-operation and better understanding among the managers. Such meetings will be held every three months in Honolulu.

ROYAL D. MEAD,

Acting Sec'y H. S. P. A.

Honolulu, November 18, 1901.

The motion of E. D. Tenney, seconded by Mr. Ewart, that the old board of trustees be re-elected, met with a unanimous vote. As the trustees elect the officers for 1901-1902, President Schaefer announced that this would be done at the noon hour. At the afternoon session, the trustees reported as follows:

W. G. Irwin, president; H. A. Isenberg, vice-president; W. O. Smith, secretary-treasurer; G. H. Robertson, auditor; H. P. Baldwin, F. M. Swany, J. B. Atherton, F. A. Schaefer, B. F. Dillingham.

The statement of the sugar crop, from October 1, 1900, to September 30, 1901, was presented to the meeting by Secretary Mead, as follows:

ISLANDS.

Hawaii—

Hawai Mill Co. 843

Waialeale Mill Co. 10,800

Hilo Sugar Co. 10,214

Onomea Sugar Co. 8,732

Popekoe Sugar Co. 1,725

Honolulu Sugar Co. 4,401

Hakalau Plantation Co. 10,322

Laupahoehoe Sugar Co. 5,504

Ookala Sugar Co. 4,968

Kukui Plantation Co. 2,900

Honolulu Mill Co. 7,803

Maunaloa Plantation Co. 9,525

Honolulu Sugar Co. 9,903

Pacific Sugar Mill 4,948

Maunaloa Plantation 1,551

Grand Total 369,038

A committee consisting of E. D. Tenney and George Wilcox was appointed by the chair to confer with the steamship companies to delay the sailings of the Kinu, Mauna Loa, and a Kauai vessel so as to give ample time for the planters to discuss important matters during the day. The committee returned later and stated that the Kinu and Mauna Loa for Maui and Hawaii would be held until 5 p. m. this afternoon and the same with the W. G. Hall and James Maake for Kauai.

When the report of the committee on cultivation was called for, Mr. H. P. Baldwin announced that no report had been prepared. He announced that a report would be prepared for publication in the Planters' Monthly, and then gave the following verbal report:

"There has been little change in methods generally of cultivation in the past few years, although there have been a few new and advantageous changes made by a number of the plantations. For example in planting ratoon cane, where formerly the water ran down the furrow, I speak only of plantations where irrigation is used, the ridge between the rows has been split with a plough, the cane hilled up and the water run between rows. This method seems to pay better, the suck-

freely. In fact the ratoon yield if treated in this way will come within a ton of the yield of plant cane in the same field. At Makaweli, by hilling up, ratoons have yielded six and seven tons where the plant cane has had no large yield, and where formerly the ratoon yield was only three tons upwards.

"Of course there is an additional expense in ploughing and hilling, but not necessarily a great one. On Maui we have a young man who has constructed a wooden machine for hilling up, which we have lined with zinc and in one or two instances constructed of very thin sheet iron and which has been a great help and saving in hilling up while equal to hand work. The machine may be most easily likened to a double mould board plough. It pushes and raises the dirt distributing the latter around the cane in a very satisfactory manner. I think its use will extend. It is only a light draught machine and I recommend its use very heartily.

"With regard to the loading machine on Maui, I regard its use as perhaps not altogether satisfactory but a great help on a plantation generally. I think that we are on the right track. It has proven a great labor saver and there is a necessity we are all under the adoption of labor saving machinery. Inventors must help us in this quandary. The loader may be most adequately described as a locomotive derrick with runs on an ordinary loading railroad track, the derrick loading the cane into the cars. Mr. Rickard, the designer, was sent to the States to have the machine built and there are now three being manufactured for use at Spreckelsville, Paia and Makaweli.

"The designer has made certain modifications in the machine and if not exactly the right thing it is eminently helpful. The machine is designed to raise three tons at once but we have found that 1,600 pounds makes a more convenient amount. I saw four loads of this size made in three minutes. Something has got to be done in this direction, at present the Japanese are walking away with our dividends.

"I do not despair yet of a cutting machine. There is a mowing machine in use in Louisiana which is not practical among our heavy cane. In Louisiana the cane grows in straight stalks and in a different manner to ours. I believe that a hand machine can yet be made to save the work of three or four men. Mechanicians that I have talked with seem to believe that an electrical cutting machine generated by power at the mill, conducted by light wires to the motor in the cutter's hand, could be made to work. Such a machine would have to weigh however in the neighborhood of ten pounds which would be too heavy for the carrier. A suggestion was made to me by a friend that had seen a pneumatic hand machine for marble cutting. It struck me that there was a good principle. If it could cut marble, why not cane? The operator would simply have to point his tool and the cane would be cut to the length with no exertion beyond that of guidance, while the machine could be made not to weigh over five pounds. I believe that a man from Australia came through here with a hand cutter but that it was pronounced too cumbersome.

"Returning to the loader again, it still has not proven an entire success it is at any rate a great convenience for clearing land of rock or other obstacles. It can run anywhere that a portable railway can be placed and an instance of its use was shown at Spreckelsville, where, when the new mill was building, it saved the work of twenty men. Heavy drums were lifted and placed in position in two hours that ordinarily would have taken two days' work with a gang of men.

"It is very convenient. The mechanical genius in our midst must come forward as a supplant brute strength by ingenuity in machinery."

J. A. Scott of Hawaii, a member of the same committee, spoke of the conditions in Hilo and Hamakua, where but one variety of cane planting had been proven a poor feature. The Lahaina variety was planted too continuously and the crop of the Hilo Sugar Company had become smaller.

"The yield of the newly introduced cane," said he, "had resulted in an average of six and two-tenths tons on a tract of forty-three acres, with the density a little low owing to the rows having been placed a little too closely together, the distance, five feet, having been too contracted to allow the growing cane the full benefit of the sun and air."

"Widening the rows to six feet has resulted in a crop of 600 acres that promises yield at equal throughout to that on the forty-three acres. The money spent by the plantation for labor was nearly all expended on the old Lahaina cane, the new varieties yielding at half the expense. The Horner cultivator, made in the form of a semi-circle instead of the usual triangle, had proven a great saver in the Hilo district, gathering the weeds into a bundle and burying them when the cultivator was raised.

"Similar hilling up arrangements to those practiced by Mr. Baldwin have been practiced by us in a crude manner. With regard to cane loaders, C. C. Kennedy has, I think, been the only one of interest to us, there is still another that is just as vital; that of minimizing the manual labor necessary for harvesting a crop by this system. I have not been able to secure this information, but in a general way I am told that the manual labor per ton of cane has been reduced over 80 per cent.

The cost of handling and transportation of cane on the island of Kauai, at the Kilauea Plantation, as reported to me by Mr. Ewart, includes all outlays which appertain to the loading of the cane, the laying of portable tracks, the hauling of cane and cars on both the main and portable tracks, the cost of fuel, oil, waste, and repairs and up-keep of main line, of 45 cents per ton of cane or \$1.45 per ton of sugar. The longest haul on the main track was six miles, the longest haul on portable track was 12 miles; the average haul on main line by locomotive two miles. The loading of cane was done by contract, with an average outlay of about 15 cents per ton, including houses. Mr. Ewart shows in his figures that they have been enabled to keep the contractors to the mark and to do good clean work in loading, and also to do this work without in-

little that can be added. The advances in the past few years have been few. The reports go to show that practically little or no improvement has been made over old methods, and at this time so far as I can see the methods in vogue 18 years ago on the larger estates are still in use. The average cost per ton of sugar manufactured, for the handling, loading and transportation of cane, including all outlays, is shown to have ranged on the different plantations from \$3.50 to \$5.50 per ton for the past eight or ten years, the extreme cost being \$8.00 per ton of sugar and the minimum cost \$3.00 per ton of sugar. The question of handling and transportation of cane today is of considerable importance to many of the plantations. Many of the mills are of such a capacity that will permit of the handling for manufacture of greater quantities of cane than can be furnished, due to the stringent conditions that are placed on the cane by the mills. Hence the importance of this branch of the work has of late been much impressed upon the planters, because of the expense which ensues through not being able to keep the mill properly supplied.

With the advance in the cost of labor and the independent and more stringent labor conditions, plantations having methods for the handling and transportation of cane where they depend for the economical outlay of the work on the low cost of manual labor, now must devise new means. The advantages which plantations have had, having level and easy sloping lands where the work has been done by railroad system, loading in cars on portable tracks, in the past years, over those plantations that have had the question to deal with in cane grown by means of rougher contour and more broken conditions of their respective places, are now put on the same footing and confronted more forcibly with the problem. The labor problem not being a point of consideration at that time, they were able to perform the work by manual labor entirely at figures that would compete with conditions and methods or systems requiring less manual labor, having more mechanical devices in their use. It was apparent to the writer during the past season that much of the manual labor could be replaced by manual labor by adopting the hilly lands methods in use on plantations having similar conditions. Therefore the subject becomes one of our important branches of the industry, and while not only because of the advance in labor but because of reluctance of the cane grower to the class of work which comes under the head of handling cane, more commonly known as "Hapal Ko." It is not to be wondered at when we consider the locomotive power that the laborer expends in packing and elevating of cane in this work, whether on the main line or in the field, which is so plainly pictured by Mr. Horner.

The modes of the transportation of cane are by permanent and portable railroads, over which the cars are hauled by steam and mule power, permanent and portable mule carts, and by wagons and the wire rope tramway. Where water can be obtained for fluming cane in supply sufficient quantity to warrant the transportation to the mill, main and portable flumes are in use. Where the lands are of level nature, the use of the flume and the fluming system is generally in use, and where the contour of the estates is more broken and hilly the methods of transportation are varied, sometimes including two or more ways of transportation of cane.

On Onomea Plantation, on Hawaii, the flume system is in vogue. The cane is cut in small bundles from 60 to 80 lbs. each, and carried a distance from 100 to 150 feet to a flume side. Out of the way corners and sides of hills, gullies and more distant parts of the fields, the cane is hauled by sleds. Sleds are used because of the cane being easily handled in loading and unloading of the same. Considerable labor is used in the piling of the cane at the flume sides for night work. One by fourteen inch flume lumber is used in 12-foot length flume boxes for portable flumes, thus in removing the flume one is able to pack one section very readily. Cane is flumed in this manner through portable and permanent flumes on this plantation over a distance of seven miles. The cost for the handling, loading, transporting, and every outlay connected with the fluming of cane, including the expense of the animals hauling sleds and carts and the expense of guarding and superintending the flumes, placing and building of portable flumes, is shown by Mr. Moir to be approximately 60 cents per ton of cane, or \$1.80 per ton of sugar, delivered in the cars at the mill.

At the Kukui Plantation a wire cable system is used, the cane being loaded into wagons especially designed, after which it is hauled to the wire cable. No definite figures of cost are given by Mr. John M. Horner, but the subject is treated most fully in his writing. He refers to Mr. Albert Horner for details, and from him the following information has indirectly come to me. The cost at the Kukui Plantation for the cutting and bundling of cane approximately between 30 and 35 cents per ton, and further handling and transportation of some 27 cents per ton. This would make a total outlay of about 60 cents per ton, including the cost of cutting. Taking the average cost of cutting cane throughout the islands for the past year at about 22 cents per ton, we might say a figure of 38 cents per ton for the building, handling and transportation of the same by the wire cable system was the cost. This figure of 38 cents per ton by eight tons of cane to a ton of sugar would equal \$1.45 per ton of sugar. These figures, however, are approximate, and probably do not include the cost of wear and tear and up-keep of the system. In studying this system and looking at it from an economical standpoint, even though these figures are approximate, it is not the only point of interest to us, there is still another that is just as vital; that of minimizing the manual labor necessary for harvesting a crop by this system. I have not been able to secure this information, but in a general way I am told that the manual labor per ton of cane has been reduced over 80 per cent.

The cost of handling and transportation of cane on the island of Kauai, at the Kilauea Plantation, as reported to me by Mr. Ewart, includes all outlays which appertain to the loading of the cane, the laying of portable tracks, the hauling of cane and cars on both the main and portable tracks, the cost of fuel, oil, waste, and repairs and up-keep of main line, of 45 cents per ton of cane or \$1.45 per ton of sugar. The longest haul on the main track was six miles, the longest haul on portable track was 12 miles; the average haul on main line by locomotive two miles. The loading of cane was done by contract, with an average outlay of about 15 cents per ton, including houses. Mr. Ewart shows in his figures that they have been enabled to keep the contractors to the mark and to do good clean work in loading, and also to do this work without in-

any way reducing long established rules for the distance which portable tracks were laid apart. He mentions the fact that was observed in nearly all of the plantations on this island where cane loading was done under contract, that of the average tonnage loaded on the cars being considerably less than formerly.

The cost for handling and transportation of cane by system of permanent and portable track on the Honolulu Plantation, and in fact on all the plantations on this island, has been practically of the same proportions as the figures which Mr. Ewart shows. The system in vogue is exactly similar to that at Kilauea Plantation on Kauai, the transportation being by mule power on portable track and steam power on the main or permanent lines, the loading being done under contract at an average of 25 cents per ton of cane as against an outlay by Mr. Ewart of 19 cents per ton of cane. I have been able to gather from the figures of the work performed on this plantation and that of adjoining plantations that the average cost for the handling and transportation of cane from the fields of the upper lands where the contour of the country is more broken averaged as high as 65 cents per ton of cane or \$5.50 per ton of sugar. The foregoing figures include not only the cost of handling, loading and transportation of cane, but also the cost of the up-keep and repairs of the track, both main and portable, meaning every expense connected with the handling and transportation of the cane, inclusive of oils, waste, fuel and supplies necessary.

Like Mr. Horner, I am an advocate of less manual labor and more mule power. Being awake to the necessity of labor-saving devices for the harvesting of our rougher high lands we used the derrick and hauled most of the cane by sleds from the more inconvenient places, cutting out over 80 per cent of portable track work and reducing the manual labor some 40 per cent, increasing the mule labor 25 per cent and reducing the actual cost of loading and transportation of cane from such lands by this method to from 50 to 54 cents per ton, including all items of up-keep of track, locomotive expense, etc. We devised an automatic sling to avoid trouble with sling ropes and delays in handling which greatly increased the efficiency of the system. Each sled had its sling, and around each derrick there was always one or two extras so as not to detain the mule teams. The sling was laid loosely inside of the box-sled and cane piled on top. At the derrick a man, boy or mule were required. It operates like a derrick hay-fork, and parts in the middle by the pulling of a trigger when the load is swung over the car by the jib of the crane. In doing this work we experimented on the length of haul and found that from 300 to 1,000 feet was the limit. When making longer hauls the cost increased; beyond this, requiring more mule teams or permitting a waiting spell by the loaders of the sleds. While this was a saving of from 20 to 25 per cent on these lands in expense, we were not the same ratio of gain would accrue from this method on the level laying fields, as we were assisted by gravity, the derrick being placed so we hauled down hill. However, the special point of interest to us was that we made a saving of manual labor of 40 per cent, and even if we were not enabled to reduce the cost of loading and handling of cane by this method on more level laying fields, we would reduce the manual labor.

It is the writer's idea, however, that a machine other than the derrick system, a machine of greater labor saving efficiency for the more level fields, will be devised. We found one advantage of loading in box-sleds, which were driven between the rows of cane evenly piled by the cutters; this was in the nature of the work being so light that we employed all classes of labor, including women, and being done under dry wage we were enabled to do clean work, which was not the case when the work was done under the contract system, for the stringent conditions of labor would not permit of it. We were satisfied with our derrick, the guying of same when on steep hills sometimes giving trouble and delaying work when moving about. We have ordered from Fowler & Co., Leeds, London, a portable crane which can be put on a wagon or cane-car, and, in a goose-neck arrangement, total weight including car or wagon 3,600 to 4,000 lbs. The frame is of iron, with extension bars running out from the sides, acting as out-rippers and setting on blocks. The jib swings a complete circle to a radius of 30 feet, lifts 1,000 lbs. the crane height giving plenty of clearance. It has a cast-iron weight which moves on the tail-bars of the goose-neck shaped crane to counterbalance the combined jib and crane, thus requiring no guy-lines. The crane is also fitted with automatic brakes, a self-acting brake and all up-to-date necessary hoisting and lowering devices. The portable nature of this will permit of it being moved about without unnecessary preparation.

The conditions, therefore, that have existed for the past two years have brought about a desire for improvement in the methods of handling and loading of cane, and to 50 per cent of the plantations on these islands this has been emphasized during the past season. No cane planter can afford to neglect any source of information that ideas that will throw new light or will tend to improve the methods of handling and loading of cane. The rewards and bonuses offered by the Association has induced many persons to devise, build and give much time and attention to various cane-loading machines. Some of the apparatus of which models have been made do not in any way cover the requirements. Many of the machines are repetitions of old established methods, and but few ideas have come forward of any value. Some years ago we saw the devising of machines combined cutting and loading apparatus, were talked of and written of, but today it is practically conceded that no apparatus of this nature can be devised to fulfill the requirements, and the whole center of discussion, and thought has been toward the devising of cane-loading machines. Those machines that have come to the writer's notice have been in the nature of derricks, or cane-carrier apparatus, and in fact all of the machines that have been devised, either on paper or in model, are of this kind. All of the machines require that the cane be lifted by the laborer and placed either on carriers or in baskets, tables or containers, which are lowered and elevated. No machine has yet been devised or modeled which avoids the handling of cane by hand labor in the field, and the machine apparatus that have been constructed up to the present time are of too heavy and massive a nature.

Most all of the loading apparatus and machines, of which there are now many models and drawings, have steam and gasoline power attachments, which are serious objections to the devices, because of the increased liability of fire in cane fields. Nearly all designers of loading machines seem to lose sight of the practical side in the complete labor saving portion of the question. The whole aim given in the field is to have a machine to devise a machine that would elevate and drop the cane into a wagon or car. Little or no thought or study has been in the direction of devising an apparatus that will pick the cane up from the ground without the assistance of manual labor. Now all the machines and devices planned for the handling, and also to do this work without in-

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